

Application No: 10/073,821
Amendment dated 08/28/06

Amendments to the Claims

This Listing of Claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. *(withdrawn)* A liquid cooler comprising:
a housing;
at least two heatsinks attached with said housing, said each of said heatsinks having a top wall with an inwardly facing wall, a bottom wall with an inner surface formed to surround and contact a portion of an outer surface of a container, interior sidewalls and an interior lower wall, said inwardly facing wall, said interior sidewalls, and said interior lower wall defining a cavity, wherein said interior lower wall of said cavity includes at least one heat fin;
an outer covering, wherein said outer covering surrounds said heatsinks; and
rotating means connected with said housing for rotating said heatsinks and said outer covering.
2. *(withdrawn)* The liquid cooler of claim 1, wherein said heatsink further comprises a conductive material.
3. *(withdrawn)* The liquid cooler of claim 2, wherein said conductive material further comprises aluminum.
4. *(withdrawn)* The liquid cooler of claim 1, wherein said heatsink further comprises a plastic material.
5. *(withdrawn)* The liquid cooler of claim 1 further comprising a clearance defined by a separation between said heatsinks when said heatsinks are oriented to receive a container, and wherein said heatsinks do not come into contact.

Application No: 10/073,821
Amendment dated 08/28/06

6. *(withdrawn)* The liquid cooler of claim 1 further comprising a cooling liquid within said cavity.
7. *(withdrawn)* The liquid cooler of claim 6, wherein said cooling liquid comprises a gel.
8. *(withdrawn)* The liquid cooler of claim 6, wherein said cooling liquid comprises ice.
9. *(withdrawn)* The liquid cooler of claim 6, wherein said heatsink further comprises front wall, said front wall being a flexible membrane.
10. *(withdrawn)* The liquid cooler of claim 9, wherein said flexible membrane comprises a latex material.
11. *(withdrawn)* The liquid cooler of claim 6, wherein said top wall of said heatsink is removable from said heatsink.
12. *(withdrawn)* The liquid cooler of claim 1, wherein said heatsink comprises a pressure relief valve.
13. *(withdrawn)* The liquid cooler of claim 1 further comprising an ejecting member attached with said housing.
14. *(withdrawn)* The liquid cooler of claim 1, wherein said outer covering is insulated.

Application No: 10/073,821
Amendment dated 08/28/06

15. *(previously presented)* A liquid cooler comprising:

a housing;

a block attached with said housing, said block having an inner surface defining a space, said space configured to receive a container, said block further comprising an interior upper wall, interior sidewalls, and an interior lower wall, wherein said inner surface further comprises an inside wall, said interior upper wall, said interior sidewalls, said interior lower wall, and said inside wall defining an enclosed interior cavity;

a cooling liquid within said interior cavity; and

rotating means connected with said housing for rotating said block;

whereby said block is configured such that said cooling liquid is not in direct contact with said container.

16. *(original)* The liquid cooler of claim 15, wherein said block further comprises a conductive material.

17. *(original)* The liquid cooler of claim 16, wherein said conductive material is further comprised of aluminum.

18. *(original)* The liquid cooler of claim 15, wherein said block further comprises a plastic material.

19. *(canceled)*.

20. *(previously presented)* The liquid cooler of claim 15, wherein said inside wall of said cavity further comprises at least one heat fin.

21. *(canceled)*.

22. *(previously presented)* The liquid cooler of claim 15, wherein said inner surface comprises a flexible membrane.

Application No: 10/073,821
Amendment dated 08/28/06

23. *(original)* The liquid cooler of claim 22, wherein said flexible membrane comprises a latex material.

24. *(previously presented)* The liquid cooler of claim 15, wherein said block further comprises a top wall that is removable from said block.

25. *(original)* The liquid cooler of claim 15, wherein said block comprises a pressure relief valve.

26. *(original)* The liquid cooler of claim 15 further comprising an ejecting member attached with said housing.

27. *(withdrawn)* A liquid cooler comprising:

a housing;

at least one heatsink attached with said housing, said heatsink including a flexible membrane formed to surround and contact a portion of an outer surface of a container, and interior sidewalls, said membrane and said interior sidewalls defining a cavity;

a cooling substance contained in said cavity;

an outer covering, wherein said outer covering surrounds said heatsink; and

rotating means connected with said housing for rotating said heatsink and said outer covering.

28. *(withdrawn)* The liquid cooler of claim 27, wherein said flexible membrane comprises a latex material.

29. *(withdrawn)* The liquid cooler of claim 27, wherein said flexible membrane comprises a urethane material.

30. *(withdrawn)* The liquid cooler of claim 27, wherein said heatsink further comprises a conductive material.

Application No: 10/073,821
Amendment dated 08/28/06

31. (*withdrawn*) The liquid cooler of claim 30, wherein said conductive material further comprises aluminum.
32. (*withdrawn*) A refrigerator-freezer comprising: a freezer door including a liquid cooler for cooling a container, said liquid cooler having a housing, at least one heatsink attached with said housing, said heatsink having a top wall with an inwardly facing wall, a bottom wall with an inner surface formed to surround and contact a portion of an outer surface of said container, interior sidewalls and an interior lower wall, said inwardly facing wall, said interior sidewalls, and said interior lower wall defining a cavity, wherein said interior lower wall of said cavity includes at least one heat fin, said liquid container further including an outer covering attached with said housing that surrounds said heatsink, a pushbutton for rotating said heatsink and said outer covering, and an ejector button for removing said container from said heatsink.
33. (*withdrawn*) The refrigerator-freezer of claim 32, wherein said outer covering is insulated.
34. (*withdrawn*) The refrigerator-freezer of claim 32, wherein said block further comprises a conductive material.
35. (*withdrawn*) The refrigerator-freezer of claim 34, wherein said conductive material comprises aluminum.
36. (*withdrawn*) The refrigerator-freezer of claim 32, wherein said heatsink further comprises a plastic material.
37. (*withdrawn*) The refrigerator-freezer of claim 32, wherein said heatsink comprises a pressure relief valve.
38. (*withdrawn*) A method of rapidly chilling liquids within containers comprising: providing a liquid cooler having a housing, at least one cold heatsink, and a container receiver; placing a 12-ounce container into said container receiver; rotating said container receiver; cooling said

Application No: 10/073,821
Amendment dated 08/28/06

container from approximately 80.degree.F. to approximately 40.degree.F. in less than one minute; and removing said container from said container receiver.

39. *(withdrawn)* The method of claim 38 further comprising: providing an ejecting member, and depressing said ejector member after said container is cool but before removing said container from said container receiver.

40. *(withdrawn)* The method of claim 38 further comprising: rotating said container receiver manually.

41. *(withdrawn)* The method of claim 38 further comprising: rotating said container receiver electrically.

42. *(withdrawn)* The method of claim 38 further comprising: rotating said container using battery power.

43. *(withdrawn)* The method of claim 42, wherein rotating said container using battery power further comprises depressing a pushbutton to rotate said container.

44. *(withdrawn)* The method of claim 42, wherein rotating said container using battery power further comprises plugging said liquid cooler into a battery source.

45. *(withdrawn)* The method of claim 44, wherein said battery source is a cigarette lighter in an automobile.

46. *(withdrawn)* The method of claim 38 further comprising: cooling said heatsink by placing said heatsink in a freezer.

47. *(withdrawn)* The method of claim 38, wherein said heatsink has an interior cavity with a removable top surface.

Application No: 10/073,821
Amendment dated 08/28/06

48. *(withdrawn)* The method of claim 47, further comprising: removing said top surface of said heatsink; and filling said cavity with a cooling substance.

49. *(withdrawn)* A method of promoting the sale of liquid coolers comprising: distributing at least one liquid cooler having a container receiver; incorporating said liquid cooler into a device; placing a container into said container receiver; rotating said container receiver; cooling said container from approximately 80 degree F. to approximately 40 degree F. in less than one minute; and removing said container from said container receiver.

50. *(withdrawn)* The method of claim 49, wherein distributing at least one liquid cooler further comprises giving away said liquid cooler.

51. *(withdrawn)* The method of claim 49, wherein distributing at least one liquid cooler further comprises selling said liquid cooler during a sales promotion.

52. *(withdrawn)* The method of claim 49, wherein incorporating said liquid cooler into a device further comprises incorporating said liquid cooler into a refrigerator-freezer.

53. *(withdrawn)* The method of claim 49, wherein incorporating said liquid cooler into a device further comprises placing said liquid cooler into a dormitory refrigerator-freezer.

54. *(withdrawn)* The method of claim 49, wherein incorporating said liquid cooler into a device further comprises incorporating said liquid cooler into a pushcart.

55. *(withdrawn)* The method of claim 49, wherein incorporating said liquid cooler into a device further comprises incorporating said liquid cooler into a vending tray for use at sporting events.

Application No: 10/073,821
Amendment dated 08/28/06

56. *(currently amended)* A liquid cooler for rapidly chilling the liquid contents of a container, the liquid cooler comprising:

a block having an inner space configured to receive the container and having an enclosed interior cavity, said block being in direct contact with a major portion of the outer surface of the container when the container is received in said inner space of said block;

a cooling substance located inside the interior cavity, said cooling substance not being in direct contact with the container;

a housing connected to said the block, wherein said block is adapted to be readily removed from the housing; and

rotating means connected to the housing for repeatedly rotating said the block,

whereby the liquid contents of the container are continuously circulated by the rotation and rapidly chilled through the container by said the block and the cooling substance as said the block and container are rotated.

57. *(previously presented)* The liquid cooler of claim 56, wherein said inner space is configured to receive a cylindrically shaped metal can.

58. *(previously presented)* The liquid cooler of claim 56, wherein said inner space is configured to receive a plastic bottle.

59. *(previously presented)* The liquid cooler of claim 56, wherein said inner space is configured to receive a glass bottle.

60. *(previously presented)* The liquid cooler of claim 56, wherein said inner space is configured to receive more than one of the following types of containers selected from the group of aluminum cans, plastic bottles, and glass bottles.

61. *(previously presented)* The liquid cooler of claim 56, wherein said inner space is configured to conform to a generally cylindrically shaped container.

62. *(previously presented)* The liquid cooler of claim 56, wherein said inner space is configured to conform to containers having different shapes.

Application No: 10/073,821
Amendment dated 08/28/06

63. *(previously presented)* The liquid cooler of claim 62, wherein said block has at least one inner wall that is flexible so as to adapt to containers having different shapes.
64. *(previously presented)* The liquid cooler of claim 63, wherein said inner wall includes a flexible membrane comprised of a material selected from the group of latex, plastic, and urethane.
65. *(previously presented)* The liquid cooler of claim 56, wherein said block is adapted to be readily removed from the housing and the rotating means.
66. *(currently amended)* The liquid cooler of claim 56, wherein said inner space is configured to substantially surround and contact a major portion of the outer surface of the container.
67. *(previously presented)* The liquid cooler of claim 56, wherein said block is comprised of a conductive material.
68. *(previously presented)* The liquid cooler of claim 67, wherein said block is comprised of aluminum.
69. *(previously presented)* The liquid cooler of claim 56, wherein said block is comprised of a plastic material.
70. *(previously presented)* The liquid cooler of claim 56, wherein said cooling substance is a gel.
71. *(previously presented)* The liquid cooler of claim 56, wherein said rotating means includes an electric motor.
72. *(previously presented)* The liquid cooler of claim 56, wherein said rotating means includes a handle configured for the user to manually rotate.
73. *(previously presented)* The liquid cooler of claim 56, wherein said block includes at least one heat fin protruding from an inside wall of the interior cavity.
74. *(previously presented)* The liquid cooler of claim 73, wherein said block includes a plurality of heat fins protruding from at least one inside wall of the interior cavity.

Application No: 10/073,821
Amendment dated 08/28/06

75. *(previously presented)* The liquid cooler of claim 56, wherein said container has a longitudinal axis, and wherein said rotating means rotates said container about its longitudinal axis.
76. *(previously presented)* The liquid cooler of claim 56, wherein said inner space is configured to receive a cylindrically shaped 12 ounce beverage can, and wherein said inner space is configured to surround and contact substantially all of the outer surface cylindrical sidewall of the container.
77. *(withdrawn)* A liquid cooler for rapidly cooling the liquid contents of a container, the liquid cooler comprising:
a block having an inner space configured to receive the container and to surround and contact a major portion of the outer surface of the container, the block being substantially comprised of a material having high thermal conductivity;
a housing connected to the block; and
rotating means connected to the housing for rotating the block and the container about the longitudinal axis of the container,
whereby the liquid contents of the container are rapidly cooled via heat transfer to the block when the block has been previously made cold.
78. *(withdrawn)* The liquid cooler of claim 77, wherein said block is adapted to be readily removed from the housing and the rotating means to facilitate storing the block in a cold location.
79. *(withdrawn)* The liquid cooler of claim 77, wherein said block has at least one inner wall that is flexible so as to conform to containers having different shapes.
80. *(withdrawn)* The liquid cooler of claim 79, wherein said inner wall includes a flexible membrane comprised of a material selected from the group of latex, plastic, and urethane.
81. *(withdrawn)* The liquid cooler of claim 77, wherein said block includes an enclosed interior cavity adapted for containing a cooling substance.

Application No: 10/073,821
Amendment dated 08/28/06

82. *(withdrawn)* The liquid cooler of claim 81, wherein said block includes a plurality of heat fins protruding into the interior cavity.
83. *(withdrawn)* The liquid cooler of claim 77, wherein said rotating means includes an electric motor.
84. *(withdrawn)* The liquid cooler of claim 77, wherein said rotating means includes a handle configured for the user to manually rotate.

Application No: 10/073,821
Amendment dated 08/28/06

85. *(currently amended)* An apparatus for cooling the liquid contents of a container, the apparatus comprising:
- a receiver having a plurality of solid walls and an inner space configured to at least partially surround the container and to contact at least a major portion of the outer surface of the container, the receiver including an enclosed interior cavity adapted for containing a cooling substance inside the receiver such that the cooling substance does not directly contact the outer surface of the container;
 - a housing connected to the receiver for supporting the receiver and the container; and
 - a motor connected to the housing for repeatedly rotating the receiver and the container.
86. *(previously presented)* The apparatus of claim 85, wherein the receiver includes at least one heat fin protruding into the interior cavity adapted for enhancing the heat transfer between the receiver and the cooling substance.
87. *(previously presented)* The apparatus of claim 85, wherein at least a part of the receiver inner space is flexible so as to conform to containers having different shapes.
88. *(previously presented)* The apparatus of claim 85, wherein the receiver comprises an aluminum block having a plurality of heat fins protruding into the interior cavity.
89. *(previously presented)* The apparatus of claim 85, wherein the motor is configured for rotating the container along its longitudinal axis.
90. *(currently amended)* The apparatus of claim 85, wherein the housing is connected such that the receiver can be readily removed from the housing and the ~~rotating means~~ motor to facilitate storing the receiver in a cold location.

Application No: 10/073,821
Amendment dated 08/28/06

91. *(withdrawn)* A portable liquid cooler device for rapidly chilling the liquid contents of a container, the device comprising:

receiver means for receiving the container such that a substantial portion of the outer surface of the container is in direct thermal contact with the receiver means, and for cooling the receiver means and the container via thermal conductance, and for maintaining a large temperature gradient between the temperature of the receiver means and the temperature of the liquid in the container;

support means for supporting the cooling means and the receiver means; and

rotating means connected to the housing means for rotating the cooling means and the receiver means,

whereby the container is rotated as it is cooled.

92. *(withdrawn)* The device of claim 91, wherein the receiver means is at least partially constructed of a conductive metal.

93. *(withdrawn)* The device of claim 91, wherein the receiver means is adapted to conform to the outer surface of a beverage container.

94. *(withdrawn)* The device of claim 93, wherein the receiver means is configured to surround and contact substantially all of the outer surface of a cylindrically shaped 12 ounce beverage can.

95. *(withdrawn)* The device of claim 91, wherein the receiver means includes a flexible surface adapted to conform to and contact the outer surface of the container.

96. *(withdrawn)* The device of claim 91, wherein the receiver means includes an interior cavity having a cooling substance therein.

97. *(withdrawn)* The device of claim 91, wherein the receiver means includes a plurality of heat fins adapted to enhance the transfer of heat between the cooling substance and the receiver means.

Application No: 10/073,821
Amendment dated 08/28/06

98. *(withdrawn)* The device of claim 91, wherein the rotating means is configured such that the container is rotated about its longitudinal axis as it is cooled.
99. *(withdrawn)* The device of claim 91, wherein the rotating means includes an electric motor.
100. *(withdrawn)* A device for rapidly chilling the liquid contents of a substantially cylindrically shaped beverage container having a first temperature, the device comprising:
- a block having a substantially cylindrically shaped inner space configured to receive the beverage container and to surround and directly contact a major portion of the outer surface of the container, the block being substantially larger than the container and being substantially comprised of a conductive material;
 - a support removably connected to the block such that the block can readily be removed for prior storage in a cold environment having a second temperature substantially below the first temperature; and
 - rotating means connected to the support for rotating the block and the container along the longitudinal axis of the container,
- whereby upon placing the beverage container within the inner space of the block and rotating the block and the container for a period of time, the liquid contents of the beverage container are chilled via heat transfer from the beverage to the block.